

REMARKS

Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Claims 1-2, 4 - 5, 8 and 11 - 18 are currently being amended.

This amendment adds, changes and/or deletes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier.

Objections to the Abstract

The Office Action objected to the Abstract. Applicant requests that the current Abstract be replaced with the substitute Abstract presented at the end of this amendment.

Claim Amendments

Amendments to the claims have been made to conform the claims to U.S. custom and practice. These amendments are not made for reasons relating to patentability.

The Claims Are Patentable Over Song, Mottier and Kim

The Office Action rejected claims 1-19 under 35 U.S.C. §102 over Song, *et al.* Mottier, and / or Kim (KR2001-0011216). Applicants respectfully request reconsideration of the rejections based on the remarks that follow.

In general, it appears that the Office Action addresses only portions of claim 11. Respectfully, if a rejection under 35 U.S.C. §102 is maintained, Applicants request that the Examiner point to specific portions of the cited references as required by 37 C.F.R. § 1.104(c)(2).

Although the Office Action did not specifically address claims 1-10, Applicants wish to make the following comments with regard thereto: the present application discloses an

adaptive beam forming method which uses both a discrete beam scan and a cascade feedback. In claim 1, the array signals are pre-multibeam processed and aligned in time delay firstly, and then a sub-optimum weight is used as an initial value to iteratively calculate an optimum weight, and finally a beam is formed by means of the optimum weight. The pre-multibeam processing can supply accurate time delay information and further ensure the accuracy and the reliability. Thus, the signal-to-noise ratio of the received signals of the smart antenna can be improved greatly and superior performance can be achieved.

In each of the three references, it appears that the beam is formed by using a single beam forming manner. The references fail to disclose that the array signals are pre-multibeam processed and the optimum weight is iteratively calculated by means of the sub-optimum weight as the initial value.

The technical solutions defined by claims 2 and 3 are specific implementations of the pre-multibeam processing, which are further undisclosed by the cited references. Moreover, with regard to claim 4, a reference signal is obtained by spreading and scrambling the known pilot frequency bits of the first interval of a current frame. However in the references, the reference signal is generated by spreading without scrambling. It is therefore respectfully submitted that claim 1, and the claims dependent therefrom, are patentable over the prior art for at least the reasons stated above.

With regard to claim 11 and claims (12-19) dependent therefrom, an apparatus is recited that is configured to provide pre-multibeam processing, which is not disclosed, taught or suggested by the cited references. Moreover, the references do not suggest a re-spreading and iteration module for, among other things, calculating an iteration error that is fed back to the space domain beam forming module. For example, Song RN 213, which is the only specific portion found by the Office Action to carry out the recited function, refers to a RAKE receiver for combining multipath signals, not a resspreading and iteration module. *See* Song, col. 4, ll. 55-57.

Applicants therefore believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check or credit card payment form being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. § 1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

Date 10/10/2007

FOLEY & LARDNER LLP
Customer Number: 22428
Telephone: (202) 295-4618
Facsimile: (202) 672-5399

By 

William T. Ellis
Attorney for Applicant
Registration No. 26,874

Matthew A. Smith
Attorney for Applicant
Registration No. 49,003